



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADE MARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/649,084	08/28/2000	Wing Cheung Ho	016660-055	7505

21839 7590 11/29/2002

BURNS DOANE SWECKER & MATHIS L L P
POST OFFICE BOX 1404
ALEXANDRIA, VA 22313-1404

EXAMINER

EDMONDSON, LYNNE RENEE

ART UNIT	PAPER NUMBER
----------	--------------

1725

13

DATE MAILED: 11/29/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/649,084

Applicant(s)

HO ET AL

Examiner

Lynne Edmondson

Art Unit

1725

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 9/18/02.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☒ Interview Summary (PTO-413) Paper No(s) 1 3
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other

Interview Summary

Application No.

09/649,084

Applicant(s)

HO ET AL.

Examiner

Lynne Edmondson

Art Unit

1725

All participants (applicant, applicant's representative, PTO personnel):

(1) Lynne Edmondson.

(3) _____.

(2) Jim LeBarre.

(4) _____.

Date of Interview: 07 August 2002.

Type: a) ☒ Telephonic b) ☐ Video Conference

c) ☐ Personal [copy given to: 1) ☐ applicant 2) ☐ applicant's representative]

Exhibit shown or demonstration conducted: d) ☐ Yes e) ☐ No.

If Yes, brief description: _____.

Claim(s) discussed: 1-11.

Identification of prior art discussed: all.

Agreement with respect to the claims f) ☐ was reached. g) ☒ was not reached. h) ☐ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Applicant's representative will submit an amendment arguing against the cited references.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

i) ☒ It is not necessary for applicant to provide a separate record of the substance of the interview (if box is checked).

Unless the paragraph above has been checked, THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN ONE MONTH FROM THIS INTERVIEW DATE TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

Examiner Note You must sign this form unless it is an Attachment to a signed Office action.

Examiner's signature, if required

DETAILED ACTION

Claim Rejections - 35 USC 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-4, 6-8 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Yoshida et al. (USPN 4039114).

Yoshida teaches a wedge wire bonding apparatus comprising a bonding head, a longitudinal ultrasonic transducer (horn, 15 in figure 5) and rotatable workpiece supporting means (col 4 lines 5-33). The bond head supporting means may be fixed in the x-y direction (movement in z direction and rotation only) with x-y movement or rotary movement of the workpiece (col 5 lines 32-60 and col 10 lines 16-36). Note that the rotation is around the z-axis, at least one of the angular positions around the z axis (between 0 and 90 degrees) would be 45 degrees (col 4 lines 19-27). An operator may observe the process (col 4 lines 52-60). As all of the parts of controllably moveable, all are capable of remaining fixed relative to one another and convention dictates that transducer axis would remain fixed during the actual bonding process. See also Yoshida claims 1 and 8-12.

2. Claims 1- 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Amorosi et al. (USPN 4619395).

Amorosi teaches a wedge wire bonding apparatus (col 2 lines 31-35 and lines 50-60) comprising a bonding head, a longitudinal ultrasonic transducer (81) wherein the workpiece supporting table may be rotated through at least 180 degrees (col 2 lines 9-22) and the bond head is moveable in the x-y direction (figure 4). The bond head supporting means may be fixed in the x-y direction (movement in z direction) with rotary movement of the workpiece supporting means (fixed in the x-y direction) or the bond head may move in the x-y direction while workpiece movement is fixed in the x-y direction (col 3 lines 1-40 and col 5 lines 36-63) or moving (translated) in the x-y direction (col 6 lines 27-33). Note that rotation is around the z axis, at least one of the angular positions around the z axis (between 0 and 180 degrees) would be 45 degrees (figure 4). The transducer axis would remain fixed during the actual bonding process (only vertical movement, col 5 line 64 – col 6 line 2). See also Amorosi claims 1-8 and 19.

3. Claims 1-5 and 8-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Cheng et al. (USPN 5897048).

Cheng teaches an ultrasonic wedge wire bonder (col 1 lines 43-60) comprising a bonding tool on a support and a workpiece supporting means. The bonding tool or workpiece may be moved rotationally about a z axis (fixed in the x-y direction) with the other is moved in the x-y direction (col 2 lines 48-67, col 5 lines 10-39 and figures 3 and

4). Note that the transducer (608 in figure 6, col 7 lines 41-51) has a longitudinal axis and is mounted for rotation movement which can be positioned to form a bond at a 45 degree angle (figure 2). The transducer axis is moved into position which remains fixed while the bondhead moves vertically to effect the bond (col 7 lines 52-65). See also figure 5 and Cheng claim 1.

Response to Arguments

4. Regarding applicant's argument that Yoshida's transducer can only move in the X and Y direction, this is true. However, the fixed transducer can remain at a 45-degree angle relative to the x-y plane of the workpiece when the workpiece is rotated. The bond head supporting means may be fixed in the x-y direction (movement in z direction and rotation only) with x-y movement or rotary movement of the workpiece (col 5 lines 32-60 and col 10 lines 16-36). Note that the rotation is around the z-axis, at least one of the angular positions around the z axis (between 0 and 90 degrees) would be 45 degrees (col 4 lines 19-27) relative to a corner of the board which can move in the x and y directions without further rotation.

Therefore the 102 rejection of claims 1-4, 6-8 and 10 as anticipated by Yoshida stands.

5. Regarding applicant's argument that Amorosi's transducer can only move in the X and Y direction, this is true. However, the fixed transducer can remain at a 45-degree angle relative to the x-y plane of the workpiece when the workpiece is rotated. The

bond head supporting means may be fixed in the x-y direction (movement in z direction) with rotary movement of the workpiece supporting means (fixed in the x-y direction) or the bond head may move in the x-y direction while workpiece movement is fixed in the x-y direction (col 3 lines 1-40 and col 5 lines 36-63) or moving (translated) in the x-y direction (col 6 lines 27-33). Note that rotation is around the z-axis, at least one of the angular positions around the z axis (between 0 and 180 degrees) would be 45 degrees (figure 4) relative to a corner of the board, which can move in the x and y directions without further rotation.

Therefore the 102 rejection of claims 1-11 as anticipated by Amorosi stands.

6. In response to applicant's argument that the references do not teach that the bond head lies on a dividing line between the X and Y axes at all times, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

The Cheng transducer (608 in figure 6, col 7 lines 41-51) has a longitudinal axis and is mounted for rotation movement and thereby has means for supporting the bondhead such that the longitudinal axis of the transducers lies along a line dividing the

X and Y-axes and conventionally the transducer would be fixed during the actual bonding process.

Therefore the 102 (b) rejection of claims 1-5 and 8-11 as being anticipated by Cheng stands.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Jiang et al. (USPN 636685 B1), Elles et al. (USPN 4239144, bond head rotated into position), Kawase et al. (USPN 3941985), Quick et al. (USPN 5465899), Razon et al. (USPN 5890643), Biggs et al. (USPN 5702049), Kulicke, Jr. et al. (USPN 4073424) and Chan et al. (USPN 4550871).

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lynne Edmondson whose telephone number is (703) 306-5699. The examiner can normally be reached on M-F from 7-4 with alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (703) 308-3318. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7118 for regular communications and (703) 305-7115 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0651.

Lynne Edmondson
Examiner
Art Unit 1725

LRE
November 21, 2002

